This report is required by law (7 USC 2143). Failure to report according to the regulations can result in an order to cease and desist and to be subject to penalties as provided for in Section 215

See attached form for additional information.

Interagency Report Control No.: 12-1-05

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. CERTIFICATE NUMBER: 74-R-0073
CUSTOMER NUMBER: 1469

FORM APPROVED
OMB NO. 0579-0036

ANNUAL REPORT OF RESEARCH FACILITY

(TYPE OR PRINT)

University Of Texas
Medical Branch At Galveston
301 University Blvd
Offfice Of The V P For Research
Galveston, TX 77550

"A" by Dr. Jones 12/23/05 mc

3. REPORTING FACILITY (List all locations where animals were housed or used in actual research, testing, or experimentation, or held for these purposes. Attach additional sheets if necessary)

COPY FOR YOUR INFORMATION

FACILITY LOCATIONS (Sites) - See Atached Listing

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY **(Attach additional sheets if necessary or use APHIS Form 7023A)**

A. Animals Covered By The Animal Welfare Regulations	B. Number of animal being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not ye used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use o pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals an for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for wh the use of appropriate anesthetic, analgesic, or tranquiliz drugs would have adversely affected the procedures, res or interpretation of the teaching, research, experiments, surgery, or tests. (An explanation of the procedures producing pain or distress in these animals and the reasc such drugs were not used must be attached to this report	F. TOTAL NUMBER OF ANIMALS (COLUMNS C + D + E)
4. Dogs	0	2	24	0	26
5. Cats	0	0	0	0	0
6. Guinea Pigs	62	18	0	811	829
7. Hamsters	25	46	491	1492	2029
8. Rabbits	0	24	66	232	322
9. Non-human Primates	0	0	8	0	8
10. Sheep	0	0	464	0	464
11. Pigs	0	147	44	0	191
12. Other Farm Animals Goats	0	14	0	0	14
13. Other Animals Cotton Rats	0	153	0	0	153
Pigeon	0	194	0	0	194
Frog	0	6	20	0	26
Snake	1	0	0	0	0

ASSURANCE STATEMENTS

1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anestetic, analgesic, and tranquilizing drugs, prior to, during, and following actual rese teaching, testing, surgery, or experimentation were followed by this research facility.

2) Each principal investigator has considered alternatives to painful procedures.

3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and app Institutional Animal Care and Use Committee (IACUC). **A summary of all such exceptions is attached to this annual report.** In addition to identifying the IACUC-approved exceptions, this summary in brief explanation of the exceptions, as well as the species and number of animals affected.

4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL
(Chief Executive Officer or Legally Responsible Institutional Official)

(b)(6), (b)(7)c

SIGNED
28/2005

NOV 29 2005

This report is required by law (7 USC 2143). Failure to report according to the regulations can result in an order to cease and desist and to be subject to penalties as provided for in Section 2150.

See reverse side for additional information.

Interagency Report Control No. 0180-DOA-AN

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

CONTINUATION SHEET FOR ANNUAL REPORT OF RESEARCH FACILITY

(TYPE OR PRINT)

1. REGISTRATION NO.
74-R-0073

FORM APPROVED
OMB NO. 0579-0036

2. HEADQUARTERS RESEARCH FACILITY *(Name and Address, as registered with USDA, include Zip Code)*

University of Texas
Medical Branch At Galveston
301 University Blvd
Office of The V P For Research
Galveston, TX 77555

COPY FOR YOUR INFORMATION

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY *(Attach additional sheets if necessary or use this form.)*

A. Animals Covered By The Animal Welfare Regulations — 12. &/OR 13. Other *(List by species)*	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. *(An explanation of the procedures producing pain or distress in these animals and the reasons such drugs were not used must be attached to this report).*	F TOTAL NO. OF ANIMALS (Cols. C + D + E)
13 Line Gnd. Sqr	0	0	174	0	174
Gerbils	13	12	56	0	68

ASSURANCE STATEMENTS

1). Professionally acceptable standards governing the care, treatment, and use of animals, including approriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.

2). Each principal investigator has considered alternatives to painful procedures.

3). This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). A summary of all such exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.

4). The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTES RESEARCH FACILITY OFFICIAL
(Chief Executive Officer or Legally Responsible Institutional Official)
that the above is true, correct, and complete (7 U.S.C. Section 2143).

NOV 29 2005

(b)(6), (b)(7)c

NAME & TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL *(Type or Print)*

(b)(6), (b)(7)c

DATE SIGNED
11/28/2005

APHIS FORM 7023A
(AUG 91)

PART 1 - HEADQUARTERS

Exceptions to Housing Regulations
2004-2005 USDA Annual Report
University of Texas Medical Branch
74-R-0073

Four hundred twenty-one (421) sheep were housed in metabolic stanchions for up to four weeks. The sheep were housed in the stanchions for 48 hours prior to surgery to adapt them psychologically to this type of housing. The stanchions allow the sheep to stand or lie down in sternal recombency. The purpose of the stanchions was to prevent disruption of vascular catheters and other instrumentation placed surgically. These sheep are provided the most intensive care of any animals on campus with observation four times daily on weekends, a time when there are few animals on study, to around the clock during week days.

There were 8 non-human primates (rhesus monkeys) used on a long term/chronic study. The monkeys were housed singly in the same room. To prevent damage to the surgically implanted indwelling scientific devices in each animal, pair housing was not possible. Mutual grooming and the possibility of fighting between the monkeys could dislodge or expose the delicate medical instrumentation. Physical contact (hands, feet, etc) was still possible through cage slats in the caging system used. Visual and vocal communications was also possible. Environmental enrichment included the use of toys, puzzle feeders, and food treats.

"E" Level Descriptions/Justifications
2004-2005 USDA Annual Report
University of Texas Medical Branch
74-R-0073

Species = Guinea Pig. # = 30

The purpose of this study is to test antiviral drugs under development for arenaviral infections. Guinea pigs are the most accurate and relevant model system for studying arenavirus hemorrhagic fever and are therefore the animal model used in the study. Animals will be injected with an antiviral drug followed by challenge with a hemorrhagic fever virus. Control animals will receive a sham injection followed by viral challenge. In order to test the effectiveness of antiviral drugs, measured by the difference in survival between the test and control animals, the viral infection must be allowed to run its course with recognizable signs or symptoms developing in the control animals and in any of the test animals not protected by the antiviral drugs. The use of intervening therapies that might alter the progression or recognition of the signs and symptoms of the viral infection in the animal model, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the study.

Species = Guinea Pig. # = 56

The purpose of this study is to determine which pattern of mediators (cytokines and other proteins) is associated with fatal, as opposed to non-fatal hemorrhagic fevers or to a mild form of the viral infection. Results of the investigation will increase the understanding of the way viruses, such as arenaviruses, cause disease in humans and will aid in the identification of new treatment strategies. Guinea pigs are the most accurate and relevant model system for studying arenavirus hemorrhagic fever and are the selected animal model for this study. Animals will be infected with a hemorrhagic fever virus and repeated blood samples will be taken to measure cytokines and other proteins as the infection progresses. To accomplish the purpose of this study the viral infection must be allowed to run its course with recognizable signs or symptoms developing in the animal model used. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the study.

Species = Guinea Pig. # = 40

The purpose of this study is to determine the potential of two T-cell immunity enhancing immunomodulatory drugs in the treatment of tropical and emerging, usually fatal, hemorrhagic fever-causing viral infections. The guinea pig has been established as an animal model for Pinchinde virus and other more pathogenic arenaviral hemorrhagic fever-causing viral infections in humans. Animals are mock treated or are treated with one of the two T-cell immunity enhancing drugs followed by viral infection to determine the effect of the drugs on the disease and mortality. In order to accomplish the objectives of the study the infections must be allowed to progress to recognizable signs or symptoms in the animals. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the study.

Species = Guinea Pig. # = 400

The purpose of the studies under this research protocol is to evaluate various new antibiotics, anti-toxic drugs, monoclonal antibodies, and vaccines that might block the pathogenesis of inhalation anthrax, a lethal condition in humans and animals. Screening of potential therapeutics is initially performed in tissue culture assays with purified *Bacillus anthracis* toxins but further evaluation of promising therapeutics must be performed in live animal models. To fully evaluate the efficacy of therapeutics against inhalation anthrax the disease process must be reproduced in an animal model such that controlled experiments can be conducted. Federal contracts (NIAID) require the use of lethal infection in mice, guinea pigs, and rabbits as an indicator of whether products would likely evoke protection in humans exposed to aerosol infection with *B. anthracis* spores. All data generated in the studies are subject to review by the Food and Drug Administration, which has established the "two animal rule." The latter regulation has been established just for anthrax and will permit products to be developed for use in anthrax patients without efficacy testing in humans. Therefore, new products developed to treat anthrax patients will have to be evaluated by federal regulation in at least 2 animal models. The most accepted animal models for the evaluation of therapeutics for inhalation anthrax are systemic infection models in mice, guinea pigs, rabbits, and nonhuman primates. The guinea pig model was selected for this portion of the study and rabbits were selected as the second animal model for testing in the second portion of the study (see rabbits [232] below). The animals are infected by the respiratory route and within 2-3 days a lethal infection occurs in unprotected cases. To test new antibiotics, anti-toxic drugs, monoclonal antibodies, and vaccines that might block the pathogenesis of inhalation anthrax, the disease process caused by the inhalation of bacterial spores must be allowed to progress to recognizable signs or symptoms in the animal model. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the study.

Species = Guinea Pig. # = 285

The purposes of these studies are to evaluate various new vaccines, antivirals and topical anti-microbials designed to prevent or treat genital herpes simplex virus (HSV) infections. Genital HSV infections are a significant public health problem and there is no vaccine available. The disease continues to spread in the human population in the face of current antiviral therapy. Development and evaluation of new interventional strategies is paramount to slow the spread of this disease. Genital and rectal infections with HSV in guinea pigs provide extremely accurate and reproducible models of human infections in which evaluation of new vaccines, antivirals and topical therapies designed to prevent or treat the disease can be conducted. In the study animals are inoculated with HSV by intravaginal or intrarectal instillation. In some cases the animals may be treated at the inoculation site prior to virus challenge. In order to test the effectiveness of the new interventions infections with HSV must be allowed to progress to recognizable signs or symptoms of the disease in the animal model. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects or those that might alter the function of neuronal elements of the guinea pig, would adversely affect the study.

Species = Hamster # = 953

The purposes of these studies are to investigate the pathogenesis of West Nile Virus (WNV) encephalitis and to investigate strategies for treatment and control of the disease. Specific aims of the studies are to look for the initial sites of viral replication, the mechanisms of virus dissemination and neuroinvasion, the site of virus persistence, and to test the efficacy of selected antiviral compounds, candidate vaccines, and a potential Fab antibody for WNV, for the treatment and prevention of WNV encephalitis. In order to study the pathogenesis of encephalitis an animal model that develops the disease must be used. The same is true of investigating the protective effects of vaccination and antiviral compounds against the virus. Most previous studies of West Nile encephalitis have been conducted in nonhuman primates or mice. For this study, the hamster model was selected because the disease in hamsters is less severe than that in mice and is more like the human disease. After experimental inoculation with the virus, animals are sacrificed at regular intervals and tissues collected for analyses. Intervening therapies might alter the progression or recognition of the signs and symptoms of the infection, including those pharmacologic agents that do not have anti-inflammatory effects, and can not be used as they would adversely affect the study.

Species = Hamster # = 357

The purpose of the study is to investigate the development and course of medically important phelboviruses (Punta Toro, Sandfly Fever Naples, and Sandfly Fever Sicilian) in the hamster animal model and to investigate the animal's immunological responses to infection with these viruses. Syrian golden hamsters have been established as an animal model for several viruses, including Gabek Forest and Punta Toro infections and they closely mimic human infection with these viruses. Animals will be inoculated via the intraperitoneal route with a predetermined amount of virus for each experiment. After a predetermined time blood samples will be taken for viral assay and serological testing. The nature of these studies requires that the disease process be allowed to run their courses within the animal model without interference by other than the animal's natural defense mechanisms. The use of intervening therapies that might alter the progression or recognition of the signs and symptoms of the infections, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the studies.

Species = Hamster # = 40

Alphaviruses including eastern, western and Venezuelan equine encephalitis viruses are important natural human pathogens. The purpose of this study is to use an animal model in an effort to create a vaccine candidate that would induce immune responses sufficient to protect against lethal infection by alphaviruses including eastern and Venezuelan equine encephalitis viruses. To study the disease, mice, hamsters, and guinea pigs are used because they develop disease similar to that in humans. Cotton rats have also been used because they develop little or no disease even though the virus infects and replicates in the model very efficiently. The use of several animal models allows one to compare how these hosts handle the virus infection. In this particular study the hamster model was selected for use as it is the preferred animal model for studying how humans respond to infection with alphaviruses. Animals will be infected with viruses via the bite of an infected mosquito or using a needle (intradermal, subcutaneous, or intraperitoneal) and incubated for various intervals before sacrificing for blood samples and tissue collection. In order to test the effectiveness of vaccine candidates, infections with the alpha viruses (EEE and/or VEE) must be allowed to progress to recognizable signs or symptoms in the animal model. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the study.

Species = Hamster # = 142

Hantavirus cardiopulmonary syndrome (HCPS) is a frequently fatal disease that is endemic in the Americas. Laboratory models are needed to elucidate the pathogenesis of HCPS and to assess the efficacy of candidate therapies for this disease. The results of recent studies established that Andes virus, a hantavirus, in the hamster can cause a highly lethal HCPS-like disease. The purpose of this study is to investigate the

pathogenesis of Andes virus in the hamster animal model. The specific objectives of the study are to assess the effect of age of the hamster at onset of infection, inoculum dose, and route of inoculation on the course and outcome of infection. The results of this work are expected to advance the knowledge of the pathophysiological events that precede or coincide with the life-threatening pulmonary edema and then death or recovery from severe HCPS. Animals will be inoculated intranasally or intramuscularily with virus and sacrificed at designated time points port-inoculation. In order to accomplish the objectives of the study the disease process must be allowed to progress to recognizable signs or symptoms in the animal model. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects, can not be used.

Species = Rabbit # = 232

The purpose of the studies under this research protocol is to evaluate various new antibiotics, anti-toxic drugs, monoclonal antibodies, and vaccines that might block the pathogenesis of inhalation anthrax, a lethal condition in humans and animals. Screening of potential therapeutics is initially performed in tissue culture assays with purified *Bacillus anthracis* toxins but further evaluation of promising therapeutics must be performed in live animal models. To fully evaluate the efficacy of therapeutics against inhalation anthrax the disease process must be reproduced in an animal model such that controlled experiments can be conducted. Federal contracts (NIAID) require the use of lethal infection in mice, guinea pigs, and rabbits as an indicator of whether products would likely evoke protection in humans exposed to aerosol infection with *B. anthracis* spores. All data generated in the studies are subject to review by the Food and Drug Administration, which has established the "two animal rule." The latter regulation has been established just for anthrax and will permit products to be developed for use in anthrax patients without efficacy testing in humans. Therefore, new products developed to treat anthrax patients will have to be evaluated by federal regulation in at least 2 animal models. The most accepted animal models for the evaluation of therapeutics for inhalation anthrax are systemic infection models in mice, guinea pigs, rabbits, and nonhuman primates. The guinea pig model was selected for this portion of the study and rabbits were selected as the second animal model for testing in the second portion of the study (see guinea pigs [400] above). The animals are infected by the respiratory route and within 2-3 days a lethal infection occurs in unprotected cases. To test new antibiotics, anti-toxic drugs, monoclonal antibodies, and vaccines that might block the pathogenesis of inhalation anthrax, the disease process caused by the inhalation of bacterial spores must be allowed to progress to recognizable signs or symptoms in the animal model. The use of intervening therapies that might alter the progression or recognition of the disease status of the infected animals, including pharmacologic agents that do not have anti-inflammatory effects, would adversely affect the study.